

# Aviation News

McGraw-Hill Publishing Company, Inc.

SEPTEMBER 25, 1944



**Heads Aircraft Manufacturers:** Scott Russell, lawyer, legislative consultant and manufacturing executive, just approved by the Board of Governors of the Aeronautical Chamber of Commerce as the Chamber's general manager to head up the aircraft industry's revitalized national trade association. He served in the Army Air Forces in the last war, has been a Federal attorney and in the textile and lumber business. He is 49 and a native of Atlanta.

★

## Latin-American Route Cases Heard

Five major shiplines represented, supported by Maritime Commission; right to engage in air transport argued....Page 7

★

## Design Changes Revise Schedules

Cancellation of 1947 *Lightnings* ordered; Douglas cuts C-47 total by 1,286; P-40's, PT-13's, P-63's affected.....Page 29

★

## Analysis Favors Airline Stocks

Merrill-Lynch report lists growth prospects, trained personnel reservoir as factors for advance.....Page 33

★

## 'Copter Development Speeds Ahead

At least 12 reported to have reached flight stage; Nash-Kelvinator begins production line assembly.....Page 30

★

## Ask Rate, Tariff Method Changes

Air Cargo, Inc., summarizes nationwide field survey of air cargo potentiality made by organization.....Page 34

★

## Resume Engine Fire Research

New \$100,000 CAA test laboratory to be started immediately in Indianapolis for continuation of study halted by war....Page 40

★

## Study "Aircruiser" as Feeder Plane

Possible relaxation of rule requiring multimotored craft, turns attention to Bellanca's one-motored transport..Page 38

★

## Packaged Port Units Predicted

Westinghouse's White sees widespread post-war use of prefabricated facilities for smaller communities.....Page 14

# KEN-RAD

TRANS-MI TO TUBE

FOR AIRWAYS COMMUNICATIONS



Lead-time did not introduce Ken-Rad to foreign service. Years before the war our export accounts were located in sixty countries on every continent and major islands to every sea. In war or peace Ken-Rad serves the world.

Write for your copy of "Basic and Characteristic" data sheet complete diagram of tube other nations available.

## KEN-RAD

AVIATION DIVISION  
OWENSBORO, KENTUCKY

DESIGNED BY MICHAEL ARTHUR, RAY THERM

TRANSMITTING TUBES  
CATHODE RAY TUBES  
SPECIAL PURPOSE TUBES

RECEIVING TUBES  
INCANDESCENT LAMPS  
FLUORESCENT LAMPS

## THE AVIATION NEWS

### Washington Observer

**COASTAL TASK FORCES**—Passage by the House of legislation permitting establishment of private airlines in the Coast Guard Auxiliary would give this country a prepared and trained coast patrol air service in the event of another war or other emergency. Civil Air Patrol did a marvelous job, but setting up of business would have been impracticable earlier if some such legislation as this had existed prior to the war. Coast Guard Auxiliary members became part of the armed services when called to duty, got equipment, hospital care, death and injury benefits that the CAP did not get. Air auxiliary could be organized wherever coast guard controls navigable waters—lakes and rivers as well as oceans—would be an operating unit that could serve anywhere, inducted with discipline, trained for emergencies, equipped for action.

\*\*\*

**LOCKHEED SCHEDULE REVISION**—In connection with the reduction of P-38 Lightning output at Lockheed, officials permitted it to be known that this schedule change will provide both plant facilities and manpower for a new production effort which includes a new type, still restricted fighter—and intensification of output in the C-48 Constellation, Army Transporter and Lockheed's entry in the post-war commercial contest and the Navy's PV patrol bomber, the latter due to be used intensively in the Pacific war.

\*\*\*

**ENGINE SUPERLATS**—Though less in solid sheet it, the prospective aircraft engine surplus

will be more serious eventually, and economically, to the industry, than will be the overplus of airplanes. Military engines are built on a lighter weight-power scale but with reasonable treatment they are perfectly satisfactory for commercial operations. Furthermore, abundance in power plants is much denser than it is in airplanes. Military engines could be used for many years to come, if design progress continues on the present gradual upward slope. Alliston and Relco-Raynes, as well as the radial engines, are being considered for commercial use. Airplane producers would be glad to offer for sale equipment with a low price tag, due to bargain-counter engines, but most of these will forget that advantage and advocate occupying engines as well as planes, if they are assured of an effective disposal program that will clear the market for new commercial products.

\*\*\*

**CONVERSION LUCK?**—Some prospective post-war biplane producers are tied up with Pacific war orders, cannot get along with their aircraft development—and think maybe they are lucky at that. In their opinion, Raymer's answers to questionnaires as to what kind of planes they want, don't mean much. Prospects will buy the plane that suits them best when they see the line. Almost certainly, these sources say, a lot of designers are going to guess wrong. There are plenty of other chances for wrong guesses. Plane producers, trying to get started in anticipation of a German collapse, are taking for price quotes on engines, to give one example, with no back. They would like a "quote" also on the maximum minimum rate—30 cents

Missions of Eighth Army Air Force on Munich over Europe



AVIATION NEWS • September 25, 1944



# A LITTLE WOODEN BOX that's speeding aircraft progress



By JOHN B. KENNEDY

Famous news analyst tells how "Suggestions for Victory" from Bell Aircraft employees have saved thousands of dollars of the taxpayer's money and a comparable number of man-hours

"In every Bell Aircraft plant you'll find suggestion boxes. Into these boxes Bell Aircraft employees, who think while their skilled hands are at work, last year deposited 4200 ideas to improve plant operations and Bell Aircraft products. Out of these, after being cleared through Bell Aircraft's Patent Office, have been put to work. As a result thousands of dollars have been saved in the cost of building Bell airplanes and other war weapons. Other suggestions are helping to speed Victory by saving thousands of man-hours.

"Take the case of a supervisor of Iron-Plant Traffic in one Bell Aircraft plant. His plan for simplifying the operation of the conveyor system, by which workers receive material and parts, amounted \$54,561 telephone calls per week—totaling a yearly saving of \$39,845, to say nothing of time.

"Instead of a telephone operator notifying the station that supplies are on the way, when the conveyor passes a certain point, it lights an electric bulb. This signal notifies the worker to be on the lookout.

"This new system is one of many production methods suggested by Bell Aircraft employees that are now in use in other Allied Aircraft plants.

"Bell Aircraft workers are making every effort to speed the day of Victory. When that true comes, you can trust this same manufacturing skill in engineering to bring you many things to make for a better world at peace."

★ Buy War Bonds and Speed Victory ★

MEMBER AIRCRAFT WAR PRODUCTION COUNCIL—EAST COAST, INC.

**BELL Aircraft**  
PACEMAKER OF AVIATION PROGRESS

© Bell Aircraft Corporation



**NIGARA FRONTIER DIVISION**  
Buffalo and Niagara Falls, N. Y.  
Avalanche (F-38) and Kingfisher (P-63)—Fighters  
Assault—America's First Jet Propelled Plane  
The Bell Helicopter

**GRAND RAPIDS DIVISION**  
Birmingham, Pa.  
Firefly Gun Mount and other airborne materials  
**GEORGIA DIVISION**  
Marietta, Ga.  
B-29 Superfortresses

VOLUME 2 • NUMBER 9

**Aviation News**  
McGraw-Hill Publishing Co., Inc.

September 25, 1944

## 16 Applicants Begin Presentation Of Vital Latin America Route Cases

Five potential steamship lines are well represented, supported by Admiral Land and Maritime Commission; old arguments on right of surface carriers to engage in air transportation and regulated competition vs. chosen instrument to be threshed out.

By DANIEL S. WENTZ II

Events which can influence the United States' future relations with Latin America for years to come began to shape up last week as the Civil Aeronautics Board opened hearings on applications to face the Americans with a network of operating airlines destined to convert the Board's map of proposed South American air routes into a powerful instrument for hemisphere unity.

The sixteen applicants who began the presentation of their cases in what promises to be the largest and most complex of CAB's present series of international route proceedings are all fully aware of the implications the case holds.

**1004 Questions Reopened**—The hearing, in its early stage, indicated that the familiar questions of chosen instrument versus regulated competition and surface versus air carriers would be reopened along with the aspects of convenience and necessity on which the Board is to base its decision.

Surface interests are present in full force, with five of the most powerful U. S. steamship lines, long-established in the Latin-American trade, as applicants. These are United Fruit Co., Moore-McCormack Lines, Waterman Steamship Corp., Grace Line, Inc., and International Air Lines, subsidiary of Atlantic Gulf, and West Indies Steamship Co. (AWGI).

**Land Backs Shipping Complex**—Supporting the shipping companies is the Maritime Commission, whose chairman, Rear Admiral Henry S. Land, is a vigorous opponent of separation among the forms of transportation.

An argument early in the case, between counsel for the Department of Justice and for the Waterman Steamship Corp. on the question of surface carriers in air transportation was the opening skirmish in the struggle which is sure to come during the next few weeks.

Many domestic airlines are convinced that their destiny as international carriers lies toward the south, and as a result are seeking entry into a field where hitherto the term American flag carriers

has meant only Pan American Airways and its affiliates. The domestic take courage from the fact that CAB is proceeding with international hearings on the basis of the regulated competition policy set down in the Civil Aeronautics Act as it now stands.

**Five Impassable**—All applicants, except those now operating in the field, are faced with two impediments on which State Department disapproval seems imperative. Although both CAB and the Department of State have made it clear that in most cases landing rights will be secured through intergovernmental negotiations, no definite information has been supplied as to whether a successful applicant will have the requisite landing privileges for operating his route. Likewise uncertain is the right to carry passengers between points within countries where routes might be granted.

Domestic airline applicants include American Airlines, Braniff Airways, Eastern Air Lines, Chi-



TESTIFIES IN LATIN AMERICAN CASE:

Charles A. Ribicourt, traffic vice-president of American Airlines, explains exhibits prepared in support of his company's application to have its Mexican certificate made permanent. CAB Examiners Brogan and Spang are in background. Other AA witnesses included C. W. Jacob, secretary, Ralph S. Damos, vice-president, and Stanley G. King, president of American Airlines de Mexico, non-operating subsidiary.

cgo and Southern Air Lines, Delta Air Corp., National Airlines, Western Air Lines, and Colonial Airlines.

Applicants of CAB-certificated non-domestic operators include those of American Export Airlines, Caribbean-Alitalia Airlines, Pan American Airways, and Pan American-Grace Airways.

**New Operations File**—Several new operations filed for routes in the area, but failed to appear at hearings held under way. Among them are Gordon's North-South Air Lines, Inc., New York & Bermuda; Air Lines, Aerovias Nacionales, P. R., and Andrew J. Burke.

After a succession of city-wide hearings, American Airlines was heard as its application to make permanent its temporary certificate for F&M 26 to Mexico City. Assistant Chief Examiner Francis W. Brown and Examiner B. H. Hirschling are participating over the hearing, which is expected to require four to six weeks.

## Brinckerhoff to Sell SWPA Planes Abroad

James A. Garfield, of DPC, to direct domestic aircraft disposal machinery.

Organization of the surplus aircraft disposal machinery has been completed with designation of William W. Brinckerhoff to handle overseas sales. Brinckerhoff is chief of the Air Transport Division, Bureau of Supplies, at the Foreign Economic Administration.

The domestic disposal machinery is directed by James A. Garfield, director of the aircraft division of Defense Plant Corp., which overall surplus aircraft policy is under guidance of Asst. Sec. William B. Harding.

**Large Disposal Job** — While no planes have yet been declared surplus, this phase of disposal will be one of the largest where declarations begin. Much of it will have to be disposed of overseas through local disposition by Foreign Economic Administration officials.

It is anticipated, however, that the Reconstruction Finance Corp., to which surplus planes are first released, with some sense of the domestic surplus to FEA for sale where advantageous overseas. The State Department Aviation Division will be consulted on policy for these foreign sales.



**Head Phase Surplus Disposal** — Disposal of surplus airplanes is the responsibility of these three men. William W. Brinckerhoff (left) will conduct overseas sales for the Foreign Economic Administration. Asst. Sec. William B. Harding (center) is chief of the Aviation Division of Defense Plant Corp. Property Administration and directs overall policy. James A. Garfield is in charge of overall sales for Defense Plant Corp., which handles domestic sales.

**Aviation Insurance Man** — Brinckerhoff has been associated with aviation for many years and before becoming head of the FEA Air Transport Division was in the aviation insurance business in New York.

Several other details of the surplus disposal program have been clarified in recent discussions and it appears probable the Page Surplus Aircraft Authority subcommittee's report will be followed largely in policy matters.

A few tactical aircraft suitable for specialized industrial or private use will be sold through DPC with priority to be established by negotiation.

**Sense to Be Sounded** — However, for which little or no private use is practical, will be sold to DPC through agencies and held until they can be assigned to organized training programs at uniform model prices. Some will be sold to foreign governments after consultation with the working committee of the Aviation Division of Surplus War Property Administration.

Components will be stored and distributed through their manufacturers under agency contracts with the agreement of prices to be set by DPC and SWPA.

Any tactical aircraft sold overseas will be processed through a

preliminary procedure. Applications will be made to FEA, which will consider the requests to the Aviation Division of SWPA, where the working committee will clear proposed sales with the State, War and Navy Departments. Negotiations for sale will be conducted by Foreign Economic Administration.

## A-20 Hawk Stands Hurricane Test

Three AAF meteorologists report on flight into storm for observations.

Flagged stations of the modern all-metal construction airplanes proved itself once more and AAF meteorologists learned more about the inside of a hurricane last week as a result of a flight made by three AAF weather specialists in a Douglas A-20 Hawk light bomber, into the hurricane which caused devastation along the Atlantic coast.

The flyer, Col. Floyd B. Wood, deputy chief, AAF weather division, Maj. Harry Weiler, and Lieut. Frank Record, also of the Division, took off from Bolling Field, D.C. on August 24, 1943, and headed into the center of the hurricane, visible as a large black mass of clouds. Forty-five minutes after the hurricane was first sighted, the plane came back out of the storm—the first aircraft on record deliberately to penetrate a hurricane of like velocity.

**Air Not Excessively Rough** — Col. Wood reported. The air was not excessively rough, it would have been for a more dangerous to fly into an ordinary summer thunderhead, any large plane like a DC-3 transport could have weathered it.

The wind was uniformly strong downward air currents at the plane first penetrated the storm and 80 miles further there were rising currents so strong that the plane maintained its altitude with both engines idling. At the center, clouds and rain cleared away so the sun could be seen dimly overhead.

**100 Mph. Wind Registered** — Horizontal wind velocities at times exceeding 100 mph. remained fairly constant.

Absent were the expected ripping turbulent cross currents, which previous meteorological studies had led the flyers to expect, turbulence enough to shear the wings from the plane.

Full report on the observations of the flight is being prepared.

## ENGINEERING NEWS REVIEW

# Gas Turbine Power Plants May Cut Costs of Huge Payloads

Engineers in industry say new development should make possible super-aircraft flying at high speeds with greater economy than present engines permit.

Many power plant engineers believe that the jet turbine will do for aircraft what the steam turbine did for ships. They can foresee huge payload craft operating at very high speeds with considerably greater economy than appears possible with the presently bulky and power-limited reciprocating engines.

A very compact plant of power capacities beginning where the reciprocating engine leaves off, and with positive, smoothly running characteristics shown in a host, is an enticing package to hold out to the airplane designer. Here are some of the principal turbine schemes which are under development now.

**Open Thermal Cycle**—Two well-known schemes operate on an "open thermal cycle" which involves the combustion of air and fuel mixtures with residual gases directed against the turbine blades at high velocity through nozzles and afterwards exhausted to the atmosphere.

One of these is the intermittent combustion type, frequently referred to as the "constant volume" turbine. In this plant, the fuel and air are mixed and ignited in a separate, closed chamber and the gases are released through valves in the turbine nozzles. Thus, energy is supplied to the rotor intermittently and, like the reciprocating engine, there is no continuous application of power.

Continuity is approached by increasing the number of combustion chambers. Particularly attractive for aircraft installations because of its compactness and smooth running characteristics is the second "open" type which features continuous combustion (or "constant pressure") where compressed air and fuel are delivered to a single combustion chamber continuously and the pressure at the turbine nozzle ring are constant.

**Coolant Engine-Turbine**—Something of a cross between these two types is commanding very serious attention because of the high efficiencies immediately attainable. Exhaust gases from a very highly supercharged diesel engine are utilized to drive a turbine, the engine being arranged to supply only sufficient power to the crankshaft to drive the supercharging compressor. This system is evolved as the theory that more energy is obtainable through exhaust efflux than can be applied to the engine crankshaft.

**Closed Thermal Cycle Plants**—The tremendous degrees of heat and pressure involved in the operation of "open cycle" plants mean that much of the developmental progress must await the availability of materials capable of contain-

ing such gain without deformation. Constant-pressure gas turbine plants operating on a closed thermal cycle through the expansion of non-combustible working mediums (such as liquids, or other gases), promise to eliminate such metallurgical problems and offer further advantages with respect to weight, cost and maintenance.

In this system, the working medium (air, for instance) is compressed and then heated by burning it through a furnace. This furnace is separate from the working system and its sole function is to heat the air and raise its pressure. It may be an oil burner type, securing its combustion mixture from oil and outside air supply. The superheated air is then expanded through the turbine which delivers power to the shaft and mechanically drives the compressor. The expanded air is not exhausted to the atmosphere but rather is taken back through a regenerator, where it gives up heat to air on route to the furnace, and finally to a cooler, where its temperature is sufficiently reduced for readmission to the compressor. The working medium is therefore compressed, heated, expanded and cooled for re-compression in a closed circuit.

**Efficiencies**—Thermal efficiencies depend not on the magnitude of pressure but rather on the ratio of maximum and minimum pressures of the medium within specified maximum and minimum temperatures. Efficiency at highest where pressure ratios are lowest. In such a plant, where pressures and temperatures must not be raised to improve efficiency, the technological advantages are obvious. Thermal efficiencies as high as modern steam plants are already claimed.

**Efficiencies**—Thermal efficiencies depend not on the magnitude of pressure but rather on the ratio of maximum and minimum pressures of the medium within specified maximum and minimum temperatures. Efficiency at highest where pressure ratios are lowest. In such a plant, where pressures and temperatures must not be raised to improve efficiency, the technological advantages are obvious. Thermal efficiencies as high as modern steam plants are already claimed.

**Efficiencies**—Thermal efficiencies depend not on the magnitude of pressure but rather on the ratio of maximum and minimum pressures of the medium within specified maximum and minimum temperatures. Efficiency at highest where pressure ratios are lowest. In such a plant, where pressures and temperatures must not be raised to improve efficiency, the technological advantages are obvious. Thermal efficiencies as high as modern steam plants are already claimed.



## JET UNITS AID NAVY TAKEOFFS

Picture at left is of the first carrier takeoff using jet-assist units. The test was made with a Grumman

Wildcat, Mar. 12, 1943. Right: Grumman Avengers starting under thrust of the jet units

for experimental closed cycle plants.

Considerable experimentation is going on with closed cycle plants using ether gases, such as monatomic gases, taking advantage of more favorable pressure ratios, lower heat ratios, and densities. Liquid mediums are also under consideration, particularly the "freons." The liquid is raised to high pressures and heat is applied to vaporize the liquid. The vapor is then superheated and expanded, after which it is condensed back to a liquid, and the cycle repeated.

## FEDERAL DIGEST

### DPC Adds to Ryan, Kaiser Contracts

Summary of week's activities in U. S. and war agencies.

By MARY PAULINE PERRY

Defense Plant Corp. has made two large increases in contracts with aviation corporations. Contract with Ryan Aeronautical Co. has been increased by about \$388,000 to provide additional equipment at a plant in San Diego. This amount brings Ryan's overall commitment to approximately \$1,870,000.

Kaiser Cargo, Inc. has increased their contract by \$270,000 for additional facilities at plants in Bristol, Pa., resulting in an overall commitment of \$4,315,000.

An increase in DPC's contract with Aerojet Engineering Corp., Azusa, Calif., has been announced, providing additional facilities at a plant in Azusa, at a cost of about \$50,000. Overall commitment of Aerojet is now about \$235,000.

**War Production Board** announces appointment of John B. Campbell as deputy vice chairman for production, succeeding William B. Murphy, resigned Campbell, who is also chairman of the Automotive Production Committee and the National Forge and Foundry Committee, has been assistant deputy vice chairman for production since 1942.

The Board has approved an expansion of facilities by General Electric Co. to the extent of \$500,000 to aid in reducing the present backlog of unfilled orders for fractional horsepower AC motors. The project will be financed by the company and will be placed in a loose labor area utilizing labor re-

leased from a cutback in Navy equipment.

**National War Labor Board** announced revised rules of procedure relative to cases of possible violation of wage and salary stabilization laws. The procedure provides for removal of cases to the divisions in the regional boards and other NWLB agencies with authority to make findings of fact and, if there is a finding of violation of the Wage Stabilization Act by the employer, to recommend in the circumstances that all or any portion of the sanctions prescribed by the Act should be withheld.

**War Department** authorized additional construction at the Bockheim Airfield, Calif., construction to cost about \$165,000.

Operating Committee on Aircraft Materials Conservation stated that preliminary report by a government testing agency has indicated that elastic shock and exercise cord made of Buna-S synthetic rubber will probably be suitable for many aircraft applications.

The aircraft applications for elastic shock and exercise cord are using an appreciable volume of crude rubber and, accordingly, specifications for the substitute are being prepared and will be tested shortly. The Committee listed stages where new natural rubber must continue to be used and applications where crude rubber is prohibited.

## Leaders Pay Tribute To P. G. Johnson

Aviation and military leaders from throughout the nation attended in Seattle last Monday the funeral of the late Philip G. Johnson, president of Boeing Aircraft.

Following a regular monthly meeting of Boeing directors last Thursday it was announced to action was taken to elect a successor to Mr. Johnson. Until such action is taken Chairman C. L. Egilvold is the company's chief executive.

Active pall bearers were: C. L. Egilvold, H. T. Lewis, Harry S. Brown, William A. Allen, Gustaf Schmitt, W. F. Flansburg, J. E. Schaefer and Robert Huerf. Honorary pall bearers were: A. P. Murray of Washington, D. C.; P. Laddin, Joseph P. Ely of New York City, F. B. Collins, William E. Storing, Vol May, Neal Torsellotte, H. D. West, W. E. Reall, Casper Clarke, Raymond K. Freese, Alexander Penabaz, Robert Ballington, Judson Jennings, Dr. Dean Palmer, H. E. Bowman, Darius Corbet, John Hanzel of Philadelphia, Alan Rogers, Neil Jamison, Guy Vaughan of New York City, Joseph Engstrom, D. B. Celyer of Nashville, Ind.; Arthur R. Langha, Governor of Washington, Cal. Erik Nelson of Washington, D. C., Bing Gern, A. B. Wolfe of Dayton, and Rear Admiral A. A. Montgomery.

## ACCA Governors at Washington Meeting



T. Claude Ryan, president, Ryan Aeronautical Co.; Alfred Marcher, president, Republic Aircraft Corp.; C. J. Brakner, Glenn L. Martin, president, The Glenn L. Martin Co.; E. E. Wilson, chairman of the board of

governors, ACCA, and vice-chairman, United Aircraft Corp.; J. Carlton Ward, Jr., president, Fairchild Engine and Airplane Corp.; E. E. Gilmore, Joseph T. Gossard, Lawrence T. Cova, John C. Lee, acting manager, ACCA.



(Left) E. E. Gilmore, president, Sperry Gyroscope Co., Inc.; Major Clyde Matthews, AAF Public Relations Co., J. Brakner, president, Western Co., Los Angeles; John Shurz, USNR, Mary Public Relations Association Section; (right) Joseph T. Gossard, Jr., vice-president, General

Aircraft Corp.; Lawrence T. Cova, vice-president, ACCA and chairman of the board, Fairchild Aircraft, Inc.; Harry Woodward, president, Consolidated Tissue Aircraft Corp.; Sherman Fairchild, chairman of the board, Fairchild Engine and Airplane Corp.

### Chamber's New Manager

Scott Russell, widely known business administrator and legislative consultant, has been appointed general manager of the Aeronautical Chamber of Commerce and will take over directorship of the aircraft manufacturing industry's reorganized trade association on Oct. 1.

Announcement of the selection of Russell, which ended widespread speculation in the industry, was made by Eugene E. Wilson, chairman of the Chamber's Board of Governors and vice-chairman of United Aircraft.

Russell has just completed a year as general counsel for the George Committee — the special Senate Committee on post-war economic policy and planning. He is 40, a native of Oregon and has had extensive trade association experience, having been director of the American Cotton Textile Manufacturers Association and the Cotton Textile Institute.

Prior to coming to Washington, Russell was president of the Halsey Manufacturing Co., large cotton manufacturers. He received his law degree at Mercer University Law School in 1928. After serving as U. S. District Attorney from Mar. 1928 to Jan. 1929, he entered private practice and became a partner in the firm of Jones, Jones, Johnston and Russell. In 1939 he returned from the firm to become executive vice-president of Halsey and in 1941 he was elected president. He has an established reputation for dealing with reorganization and administrative matters and is familiar with conversion problems.

John Lee, who has, for the past three months directed the reorganization of the Chamber as acting general manager, will serve through the West Coast firms of Lee and Leach, in a consulting capacity to the new general manager.



John C. Lee; Robert E. Gross, president, Lockheed Aircraft Corp.

C. J. Brakner, Glenn L. Martin, E. E. Wilson, J. Carlton Ward, Jr.



#### CORSAIR NOW FIGHTER-BOMBER:

Fast picture of a Chance Vought F4U Corsair in its new role of fighter-bomber. Corsairs, flown by Marine Corps pilots and carrying a 1,000 pound bomb have been used with great success in neutralization raids on Jap island outposts. The aircraft are dive-bombing and glide-landing tactics and then turn to strafing operations with their 30 caliber machine guns.

### Industry Backs 75% Termination Pay Plan

Decision to make partial settlements almost immediately on cancellation of contracts is generally approved.

Receipts of the aircraft industry is generally favorable, with some reservations, to the new regulations authorizing contracting officers to pay at least 75 percent of contract terminations almost immediately to give manufacturers necessary working capital to swing into reactivation.

Regulations issued by Robert H. Hinkley, director of contract settlement, authorize partial payment of contractors' claims of at least 75 percent and up to 90 percent of estimated termination costs within 30 days of application, with additional payments on submission of adequate accounting data.

**Industry Reaction**—Some industry spokesmen characterize the regulations as objective and generally fair and hold that they simplify procedure. There are some who feel the regulations are better for subcontractors than for prime and want more liberal terms.

In some industry circles it is felt that the regulations give the contracting officer powers of such wide discretion that the contractor might be at the mercy of the contracting officer and a note of caution is sounded that it is best if the contractor has some other financing in mind in order to take care of any interim payment lag.

The action provides a mechanism for much of the contract ac-

counting and follows similar procedures already being used by the War Department.

**Part Payments Provided**—The regulations provide that part payments are to be made to prime contractors on their own applications and on applications of subcontractors submitted through them and any intervening contractors to the government.



#### RCAF FOOD HEATER:

RCAF aircraft was electrically heated food box, on coastal patrol long-range missions. Heater has possibilities for post-war long distance airline use. Box contains four food containers, twelve thermos bottles. Pre-heated at stations before taking off, it will hold food warm at 135 degrees for twelve hours at less below zero. It can be reheated by plugging into electric current on plane.

The 75 percent settlement was described as providing an alternative means of securing funds to the already sanctioned T-loan program which will be administered by the Federal Reserve System. The Contract Settlement act authorizes T-loans to enable any war contractor to convert into cash at his local bank approximately 90 percent of the actual value of war assets frozen by termination.

### Europe Seen as Big U. S. Plane Market

Two engineers of Glenn L. Martin Co., after inspection trips abroad, believe Europe will be a potential market for American commercial aircraft since Germany is deluged and then even England, formerly regarded as a post-war competitor, may be a post-war customer.

Clifford S. Roberts, assistant chief engineer, and Peyton M. Moser, chief of new designs, said destruction of railways, highways and bridges throughout Europe by Allied bombers was so complete that it would be years before they can be restored.

**Study Mail Equipment**—The two men gave particular attention to a study of German equipment and captured German air fields in France and expressed surprise at the high quality of workmanship and materials.

### Aero Club Revived

Robert Kirkhead, Washington representative of Boeing Aircraft Co., has been elected president of the newly reactivated Aero Club of Washington, a chapter of the National Aeronautic Association. The club, the oldest of its kind in the country, has been inactive for two years because of the war.

Other officers elected were Arthur Hyde, manager of Congressional Airport, J. Parker Van Zandt, of Securities Institute, and John R. P. Morgan, manager of Personal Aircraft Council, ACCA, vice-presidents. Kaci Bucha, district traffic manager, United Air Lines, secretary, and Thomas E. Lindsay, American Aviation publications, treasurer. Trustees are Robert Wilson, vice-president of Pennsylvania-Central Airlines, Charles Starnes, deputy CAA administrator, Wayne W. Thorndike, of American Aviation Associates, and Herbert Gookins, of the Chesapeake and Potomac Telephone Co.



#### NAVY'S COMMANDER:

Maj. Gen. Ross T. Vandenberg, 49, newly appointed commander general of the 5th Air Force in the European theater of operations. He succeeds Lt. Gen. Lewis H. Brereton. Gen. Vandenberg is the former deputy commander-in-chief of the Allied Expeditionary Air Force.

### Coast Guard to Get Air-Sea Rescue Unit

Formation of new network paralleling previous service expected as expanded organization presently after war.

A larger permanent Coast Guard air establishment in the post-war period is assured by formal announcement that the service is to organize an air-sea rescue network paralleling its present sea service.

Actually, the Coast Guard has been organizing for the work for some time. During the war, its air activities have been progressively expanded to take over air rescue work from the Navy in areas where training activities are conducted, and the normal weather ship patrols in the heavily traveled inter-oceanic flying lanes have been intensified to provide weather information, to act as guide ships and to become rescue vessels when planes are downed in the ocean lanes. Between five and seven ships have been used in the North Atlantic flight zone since the outbreak of the European war in 1939.

**Stations Available**—There are nine Coast Guard air stations that can be utilized in the Air-Sea Rescue Service, in addition to present Coast Guard bases in Greenland and Labrador which possibly

might be continued as part of the organization. In addition, the Coast Guard has been conducting major experiments with helicopters for use in rescue work.

Coast Guard expects to have about 450 pilots at the end of the war with some 400 planes, including helicopters. At present fewer than 70 are owned outright by the Coast Guard, the balance being on loan from the Navy. Among the Coast Guard planes, however, are many particularly suited for air-sea rescue work, numbering among them some 12 Douglas Dolphins, Grumman Wildcats and the Navy-leased PBM's now being manned by Coast Guard air crews. The Chance Vought Corsair-C, of the type used so successfully in Pacific battle theaters, also has been flown by Coast Guard planes.

### Gen. Wilson to TWA

Brig. Gen. T. B. Wilson, formerly chairman of the board of Transcontinental and Western Air, Inc., is shortly going on inactive status and returning to TWA.

General Wilson has been in charge of air transportation, air and surface, in the China-India-Burma theater. He was called to active duty with the War Department soon after the war began, having been a reservist since the last war.

### Lathrom Resigns From Truman Group

Donald M. Lathrom, aviation representative for the Truman Committee, was known as the Special Senate Committee on National Defense, has resigned and is now associated with the Democratic National Committee campaign headquarters. It was disclosed last week. No successor to Lathrom has been appointed, and committee sources say no aviation investigations are being made.

**Follows Fulbright's Resignation**—Lathrom's resignation followed that of Hugh Fulbright, chief counsel under the Truman chairmanship of the committee. Fulbright has been replaced by Rudolph Wulfsberg, executive secretary (chief counsel, George Meader, who was assistant counsel, succeeded Halley. The committee's chief investigator, Harold Bohmstedt, remains in that post.

The committee now is concentrating on the services surplus problem, and is expected to start a 10-day survey of supply depots at Alexandria, Or., Memphis, New Orleans, San Antonio, Montgomery, Ala., Savannah, Ga., Atlanta and Norfolk this week. Inventory control systems have been explained to the committee, and the field trip is designed to see how they are working in the field.



**New Rescue Teams**—The traditional role of the Coast Guard at sea has embraced the new element of the air with plans for maintenance of an air-sea rescue service after the war. The Coast Guard has been operating this service in wartime and plans to continue it in peacetime.

## Prefabricated Airport Units Developed by Westinghouse

President of firm's international company predicts wide post-war use of "packaged post" facilities for smaller communities.

Post-war use of Westinghouse "packaged airports" by many small communities in this and foreign countries, as well as by flying clubs, fixed base operators, and feeder lines, is anticipated by John W. White, president of Westinghouse Electric International Co. The company itself manufactures the electrical equipment and has arrangements with other manufacturers who will provide prefabricated buildings, portable lighting trucks, sewage pipe and other articles, which will go to make up the complete airport package.

**Efficient Sites**—Developed as a result of military needs in the con-

tinents was, the packaged airport comes in varying sizes, with construction adaptable for arctic, temperate and tropical temperatures, so that the complete assortment includes, for example, twelve types of main terminal buildings. The equipment is engineered so that it can be delivered, if necessary, by air. By varying combinations of equipment, facilities and buildings, innumerable types of packaged airports can be supplied.

The company does not grade the

fields or build the runways, nor does it make the installations of equipment, but it will cooperate with companies specializing in installations.

**Four Typical Sites**—Typical of airports which could be built from the packaged equipment, are four sizes:

►Smallest with essential equipment including radio transmitter, 50 kilowatt generator and 100 percent standby; minimum of airport lights for safe night landings (boundary lights), gasoline dispenser, single terminal building, hangar and power house, intended for airport without paved runway.  
►Larger and more elaborate airport package with additional equipment for field with 1,000-foot runway, intended primarily for air freight operations, or small feeder operations, includes living quarters for airport personnel.  
►Still larger package, for airport with 4,500-foot runways.  
►Largest package includes equipment for heavy traffic airport with 12,000-foot runways.

The packaged airport may include such items as: electrical generating and distributing equipment, public address system, runway marker lights, signaling equipment, meteorological equipment, snow plows, sewage disposal, equipment for wells and water supply, and many prefabricated steel buildings such as hangars, machine shops, terminal buildings, general service buildings, warehouses, garages, barracks and guest houses. The prefabricated units are so designed that they may be expanded as airport needs require while still making use of the original structure, and come complete with equipment needed to put them in operation.

Main utility of the packaged airports is expected to be for feeder lines, in this and other countries, and the company envisions possibility of organizations or nations acquiring several uniformly designed packaged airports at one time to serve a particular route or area.

## Port Built in Day

From sagbrush flats to usable airport within one day's time, was the airport construction accomplishment recorded by some thirty members of the Civil Air Patrol at Redmond, Ore., recently. Using graders, bulldozers, and other equipment lent by Redmond Army Air Base, the volunteer workers

began work on the chosen airport site at 8 a.m. and by late afternoon had cleared and leveled two runways, one 1,500 feet, the other 1,200 feet, used the same day for landings and takeoffs.

Temporary permit to use the landing field has been received from CAA and application has been made for permanent designation of the field, which will serve Redmond as an airport until the Army returns the Redmond air base to the city. Construction of a hangar is planned after the field is permanently designated.

## Airpark Financing

Cities seeking for U. S. funds expected to find more progressive communities have lead start.

Communities throughout the United States which are tilting back, waiting for a handsome chunk of post-war federal funds to build an airpark (recently adopted official name for personal plane airports) may find themselves well behind more progressive neighboring communities which already are preparing to finance their own airports locally.

A sizable portion of opinion in Washington aviation circles holds that most federal funds available for aviation landing facilities probably will go into landing strips or "flight stages" along the highways, and into large commercial airports. The airpark is largely a community problem; it is believed, since when the air age really comes along most of the 16,000 odd communities in the nation may be expected to have their own personal plane landing facilities.

**Wood Issues Vote**—Acting on the theory of local enterprise in airport construction, eleven Iowa towns and communities are reported to have voted or authorized bond issues for airport construction, and other communities in other states are following.

An active force in a national program of community participation in local airport building is the National Aeronautics Association, which through its local chapters is seeking to stimulate local city fathers to action in preparing landing facilities for personal planes.

It is assumed that the movement for local participation in airport construction probably will be underwritten by forward-looking local Chambers of Commerce and other



SPARTAN'S FIEDLER PLANE TO CARRY 6-8:

Spartan Aircraft Co., Tulsa, Okla., has introduced post-war plans for building two all-metal planes for personal transport. The Skyway Traveler, above, twin-engine plane, will carry six in eight, is designed for feeder airlines and business transportation for executive use. Also planned is a faster, more economical version of the well-known 6-5 plane Spartan Executive, biacoustically apposed and fitted with completely retractable tricycle landing gear. The pre-war Executive, first produced in 1935, was a high performance business plane before the war.

civic organizations, which carried the ball in former years for municipal airport construction.

**Commercial Benefits**—Future commercial benefits to a community with such facilities as downtown airport or airpark depending on its size, at an early date, probably can be more easily measured than can direct benefits from its big air terminal. While many through airline passengers with a 10-minute stop may use only a

city's airline terminal restroom facilities, the average personal plane operator and his family, even as a through trip will be much more apt to use overnight hotel facilities, patronize the stores in the downtown area adjoining the airport, and at least buy a meal, and purchase fuel and oil at the airport itself.

Moreover the community which early establishes a downtown airport will have a tendency to expand its local trade area at the expense of less progressive neighboring communities, and will become a landmark as a desirable stop on the routes of future air tourists, also at the expense of nearby towns, the proponents of local community responsibility in airport construction contend.

## Lightplane Market

While lightplane manufacturers argue pro and con whether securing war pilots will have or spare the money to buy their own planes, or whether they will even enjoy such mild flying after the speed and power they have been used to—at least one spokesman pins his hope on warplane conversion. In the first place, he says, there are more of them, and secondly they will be anxious to fly, having been exposed to the stimulus but not allowed to satisfy it. They still remain, of course, the question of whether they will have the money. That will depend on the economic state of the nation, and on jobs.

## Colo. Plans Air Body

Recommendations for establishment of a state aviation advisory committee with paid director and engineering staff and proposed legislation to enable Colorado continues to finance and construct airport facilities will be presented at the next session of the Colorado legislature.

Clarence E. Ireland, Aeronautical Committee chairman, and the director would serve aviation just



**Packaged Airport Equipment**—Typical packaged airport buildings furnished complete with equipment by Westinghouse Electric International Co., are the Clear Air airport terminal shown in elevation drawing and floorplan above and a guest house or small hotel for overnight visitors at an out-of-the-ordinary airport, below.





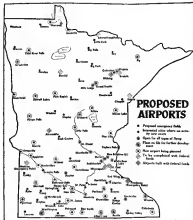
as state highway engineers handle motor traffic. State aid to counties in financing airports will be considered, and proposed enabling legislation now being prepared by the aeronautical commission will be submitted to the county commissions probably in January, Ireland said.

## Firestone to Offer Line of Air Products

Significant trend in reorganizing aircraft products to the private flyer market is indicated by Firestone Tire and Rubber Co.'s announcement that it will offer through dealers at airports in all parts of the nation the first complete products, accessories and supplies to be distributed by a single concern.

Dealer franchise have already been granted to Page Airways Co., Rochester (N. Y.) municipal airport and to Flight, Inc., at Cleveland municipal airport.

**Sales Program**—Lee R. Jackson, Firestone executive vice-president, said the new sales program would make available to private pilots at modern supply stores at airports tires, tubes, wheels, brakes, storage batteries, spark plugs, brake linings, aircraft finishing materials, apparel such as flying jackets, gloves, sun glasses, and their additional items would be added to the line as soon as wartime manufacturing restrictions are lifted. Among these concerns, field glasses, radio receivers and transmitters, radio compass and direction finders, etc. The setup will be expanded in line with post-war requirements.



## PROPOSED MINNESOTA AIRPORTS:

Air-minded Minnesotans are looking forward to a state full of airports, which will be needed to provide landing and takeoffs for all Minnesotans who want to fly them—one out of every four according to the Minnesota Poll reported in AVIATION NEWS, Sept. 11. This map, prepared from information supplied by Minnesota Aeronautics Commissioner Leslie Schroeder, indicates existing and projected airports in the state, as they fit into a state-wide program.

## ATS Studies Flying Safety Hazards

Basic flying safety hazards, as disclosed in mass flight instruction programs, are the object of a survey now being made by the Aeronautical Training Society among the more than 60 schools for which ATS serves as liaison.

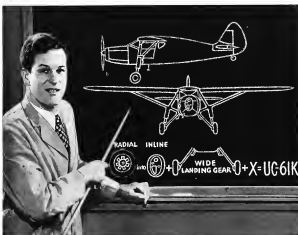
Study promises to be one of the largest in scope in aviation history as indicated by facts that in one month, November, 1943, ATS schools recorded \$4,500,000 flight miles, or approximately 13 times the mileage of the country's 16 domestic airlines, and that in Army measurements months ago, reported pilot production in these schools had passed the rate of 110,000 a year. The schools, under Army supervision, have conducted all primary flight instruction of AAF cadets since middle 1939.

**Accident Rate**—Among items in the survey will be a check of the total number of fatal accidents, against the total man hours by primary students. First studies are confined to primary flight, because of comparison of equipment and curricula. First survey results will be available in October. Besides the primary training, ATS schools have given various phases of flight instruction to British, French, Dutch, Brazilian, Chinese and other military branches of the United Nations, as well as to U. S. artillery officers and WASPs.

## Air Country Club

Development plans announced for the Cornelia Fort Airport, 500-acre CAP air center project on the Cumberland river near Nashville, would provide for dresned recreational facilities which may make it one of the most attractive private flyer havens in the South. Hiding away with little paths in parts of the area, golf driving ranges and putting fields, tennis and badminton courts, baseball fields, a clubhouse with swimming facilities, a restaurant and drug store, spectator seats on a small hill, and individual hangars enclosing the hill are included in plans now being prepared by architects. Flight operations by CAP, under direction of Lt. Col. Herbert Fox, state CAP wing commander, already have begun at the field. The airport is named for a former member of the Nashville CAP who later lost her life in a plane crash while in the WASPs.

## POINTERS ON PLANES



## Formula for "Forwarder"

The famous Fairchild "Forwarder", developed in 1932, has been constantly revised and improved . . . and is now called the UC-61K.

Ranked before the war among the most popular four place planes—and renowned now, as always, for its stability, it is performing a vital function in many theaters of war.

The engine section has been completely changed, with the 200 hp. Ranger inverted inline replacing the 165 hp. radial. The new "K" model has a longer, more streamlined nose, which makes it look larger and, in combination with a high-wing design, affords better visibility both in the air and on the ground.

The use of wide landing gear, placed well forward, and

the aid of wing flaps, makes possible short landings; and take offs in small, rough fields.

These and many other improvements, such as bell crank levers at all control joints which reduce wear, increase maneuverability, and add to the life of the plane, contribute to the growing popularity of the UC-61K.

It may be used, for example, in advance reconnaissance of enemy gun positions during airraids. And as a utility cargo carrier where medical supplies, ammunition, or parts must be moved to the front lines. It speeds pilots and high-ranking officials to points where they are most needed.

In the "Forwarder" our armed forces have a plane which, since it first came from the drawing boards, has always been ahead of the times, the embodiment of the Fairchild "touch of tomorrow in the planes of today."

NOT U. S. WAR BONDS AND STAMPS

**Fairchild Aircraft**

Division of Fairchild Engine & Airplane Corporation, Hempstead, Maryland—Washington, North Carolina

## Small Port Survey In Milwaukee Asked

City Council committee recommends investigation in downtown area for light strips and air parks in downtown area.

City-wide survey by the Milwaukee Land Commission to determine best sites for air strips and small airports in the downtown area are asked by the building and grounds committee of the Milwaukee common council, and resolutions authorizing the survey will be placed before the council for action.

An advisory committee of seven aviation experts is suggested to aid in the proposed study. Suggested sites for construction of L or T shaped strips providing 2,000-foot runways 350 feet wide, in downtown public parks, and a future elevated platform runway over railroad tracks in the downtown area to carry passengers and mail by air from the downtown rail terminal to Rife Mitchell field.

**\$2,000 From City in Aviation—**Francis Trecker, of the city's aviation committee, reports that \$2,000 from the Milwaukee area are in aviation military activities, and predicted many of these would want their private planes after the war.

Meanwhile the Milwaukee County Board is authorizing expenditure of \$7,500 to employ the engineering firm of Horner & Ruffin, St. Louis, to make a five-month study of the county's needs, reporting on suitability of existing fields, and recommending alternate airport sites if existing fields are unsuitable.

## JP Personal Plane

Major factor to be reckoned with in reduction of price of personal aircraft to a level consistent with volume business may be a private plane engine developed from current research on jet-propulsion gas turbines and the related engine covering the German rocket flying bombs. Admittedly this field of power is still in its infancy but already has advanced far enough to demonstrate definitely its practical value and certainly cannot be ignored or discounted in post-war small plane designs.

The intensely hot jet jet, which streams from current models, and in the case of the robust bomb powerplant, the very loud exhausts which provide the propelling power, are an admitted drawback. It is difficult to conceive of a low-price public interest in a personal plane powered by such a demanding firebreather.

But the fact that these powerplants are relatively simpler in construction than orthodox reciprocating gasoline engines of comparable power, and much lighter, and presumably would be easier and cheaper to produce on a mass production basis, are compelling factors presently aiding the rapid developments of this new variety of prime mover, for widely varying aircraft uses.

**Committee Nominations—**Suggested to serve on the city's advisory committee are Robert Aldrich, Minneapolis-St. Paul airport commissioner, Martin W. Torkelson, Wisconsin director of state plan-

ning, two engineers from airplanes not serving Milwaukee, and three other aviation experts connected with firms in Milwaukee.

## Revisions Expected In Port Zoning Law

Improvements expected to be made on the model state airport zoning law, as a result of a Washington conference Sept. 22, between Civil Aeronautics Administration and state and municipal officials, are preliminary to a request for further consideration of the uniform law, in state legislative sessions scheduled in 45 states next January or February. The law has been voted in 12 states, with 38 states still left to consider it. The model law was drafted through collaboration of the CAA, the National Institute of Municipal Law Officers and the Council of State Governments.

**Changes—**In determining what, if any, changes are to be made in the model law, experience of local and state governments with airport planning and zoning will be sought.

Asked to assist are: Frank Burn, executive director, Council of State Governments; Walter H. Becker, executive director, American Society of Planning Officials; George B. Logan, National Association of State Aviation Officials; W. Percy McDonald, chairman, aviation law committee, American Bar Association; Charles B. Rhyne, executive director, National Institute of Municipal Law Officers and others.

Among proposed revisions to be considered are: uses of state police power in protecting airport approaches; public utility nature of airports; educational use of landmarks to track and light hazards.

## ACC Group Forming Air Show Committee

The Personal Aircraft Council of the Aeronautical Chamber of Commerce is working on organization of an aircraft show committee. "We interrupted the industry's practice of sponsoring major and minor annual aircraft exhibitions. When shows are resumed, they will play down the mystery and adventure of flight, and emphasize safety, safety, comfort and, to whatever extent possible, economy."



**PERFORMANCE CONTROLS THE AIR**

Illustration of a biplane flying over a landscape. The text "PERFORMANCE CONTROLS THE AIR" is at the top. Below the plane, there are several small, dark, rectangular shapes arranged in a row, possibly representing fuel tanks or components of the aircraft.

RESCUER KAYAKS (streamlined the AF 11, the low wing, offset wings) released from a boat for speed.

Boeing of Rockland and general B is equipped with floats, gun and bomb racks for conversion of a series of three or four.



PESCO HAND OPERATED HYDRAULIC PUMP

**PESCO HAND OPERATED HYDRAULIC PUMP.** Here's a pump of unusually high volumetric and mechanical efficiency. As an emergency pump for aircraft it delivers 125 g.p.m. at 20 cycles per minute with 1500 p.s.i. discharge pressure. Ideal for small quantities of fluid at high pressure. Compact, lightweight and self-lubricating, with spring-loaded ball check valves for unidirectional fluid flow, and needle bearings to minimize operating torque. Meets water-tightness requirements and is A.C. approved. Write for details. PESCO Products Co., 11630 Budell Ave., Cleveland 6, Ohio (Division Borg-Warner).

What's new in hydraulics? Write for the new book, "Fundamental Principles and Calculated Flow by PESCO."

In Aircraft Hydraulics, Fuel Pumps, Air Pumps, Related Accessories...



**PESCO FIRST**



## NOSEWHEEL MODIFICATION ON CULVER PLANE:

Interesting military modification which may be useful to lightplane builders in the post-war is the nosewheel used on the Army's Culver-built radio-controlled plane, seldom pictured. Culver's previous model, the lightplane from which the target plane was developed, had retractable main wheels and a tail wheel.



Photo of Republic Thunderbolt shown in front of cheering crowd at air show

## 10,000 THUNDERBOLTS!

The 10,000th Republic Thunderbolt fighter has just come off the assembly line. There was a raucous crowd, a heavy cheer, and the first thundering roar. A small audience, perhaps, in a world at war, but a significant one. Granted to do things no airplane had ever done before, the Thunderbolt has helped our Air Force solve our tactical problem after another . . . from long distance bombing action to dive-bombing and ground strafing. Today, bearing the colors of free United Nations, the Thunderbolt fights on every front and from the remotest outpost.

The Thunderbolt is a complex machine, heavily armed and armored, superpowered, highly sophisticated. It weighs more than eight tons. It costs \$180,000. It takes 29,400 man-hours to build. It was created and produced in record time in record quantities—10,000 in 27 months—not by a "miracle" but through typical American ingenuity, down-

right hard work and splendid co-operation by thousands of people—civilian and military.

Republic is proud, naturally, of the technical excellence of the Thunderbolt, of its production record, and of the supreme back bone of the plant in whose hands it springs to life as a weapon of war.

But Republic is prouder still of the spirit of brave Americans who joined hands and hearts to build it, and who, day after day, press on to new thousands of Thunderbolts . . . and Victory!

Republic Aircraft Corporation, Farmingdale, Long Island, New York, and Evansville, Indiana.

Republic fights in war point to fight in peace

# REPUBLIC AVIATION

CORPORATION  
Specialists in High-speed, High-altitude Aircraft

## THE AIR WAR

### COMMENTARY

## Mobility of U. S. Sea-Air Power Is Navy's Trump Card in Pacific

Ability to strike devastating blow against enemy and few days later blast another base 1,000 miles away gives combination of surprise and power that makes carrier-borne aircraft recognized spearhead of fleet's striking force.

A year ago, when the Navy's new carriers, Essex, Yorktowns and Independence carried out their highly successful test raid against Marcus Island, a new page was turned in the history of naval warfare. No longer was it a theory but a proved fact that carrier-based aviation is the spearhead of naval striking power.

Sea-air power provides the fleet with a striking force of tremendous potency and amazing mobility. More than 1,000 planes can strike a devastating blow against an enemy base, and within a couple of days rear over another stronghold 1,000 miles away. The element of surprise can thus be used over and over again to keep the enemy off balance, move lines and shorten the war. This has been demonstrated repeatedly in the triumphant sweep through the Gilberts, the Marshalls, the Marianas and now Pictu in the western Carolinas. Pictu is a gem in the Philippines, and has one of the finest harbors in the South Pacific.

**Threats Discredited**—During the past year certain widely held theories have gone by the board. Facts are establishing things, and they have a disconcerting way of getting in the last word. After the all-air battles of the Coral Sea and Midway in the late spring of 1942 it became fashionable to talk about the carrier as the new backbone of the fleet. Battleships were out, and the only thing they had done in the war so far was to sink. Recent events have helped restore the balance.

Carrier-based aviation gave the fleet surprising range and mobility, but heavy cruisers and battleships, as well as land-based aviation, had an important place on the team. Long range heavy bombers can play a vital part in the preliminary neutralization of an enemy base, and before an amphibious landing to secure the base for future operations, concentrated shelling from the big boys of the fleet is the absolute pay-off.

**Carrier vs. Land-based Fighters**—Another theory that has not stood up too well is that carrier-based airplanes have an inherent disadvantage against land-based fighters and bombers. Take fighters. The necessity for fast takeoff and slow landing speed, added weight of arrester-gear and overall ruggedness have been cited as tending to limit the performance of carrier-based fighters. As a practical matter, however, the British Seaforce (carrier-Spitfire)

and Jap Zero have performed very nearly as well as their land-based counterparts, and the U. S. Navy Hellcat and Corsair are practically as good, and at some levels better than their opposite number in the AAF, the P-51 (Thunderbolt). The new Grumman F4F twin-engine fighter (reported as the Tiger Cat) may well be better than any of these, while all are superior to anything the Japs have yet shown in the Pacific fighting. Their range has been greatly increased by the use of drop tanks, and their striking power by racks carrying 500 or 1,000 pound bombs and new type launchers for high velocity aircraft rockets.

**Bombers Compared**—There is no doubt that for long range assault attacks the advantage lies with land-based heavy bombers, with their ability to carry loads of from two to three tons of bombs to targets from 800 to 1,000 miles away, depending on conditions; the carrier-borne can probably double these figures. The big disadvantage is the need of building up extensive bases within range of the enemy targets. It is here that the carrier-based dive bombers, despite their smaller load and shorter range, have a big advantage.

The modern naval air task force is itself a swing base, with all its facilities of service and supply—bombs and bullets, gas and oil,



### NEWEST MEMBER OF SPITFIRE FAMILY:

This British aircraft first went into combat on June 5 to spot British aerial gunfire in support of landings on the Normandy beaches. The Seaforce III is provided with folding wings to facilitate carrier operation and is intended for use by the British Navy in Pacific operations as a reconnaissance fighter-bomber.

parts, floating machine shops and the whole works—fully equipped within itself. Not one, but several of these are on the loose in the tightening ring around the Japanese inner empire, and plenty of fireworks are scheduled for the weeks that lie ahead. It also should be remembered that within another year the Navy will be getting its new super-carriers of 45,000 tons (present Essex class weighs 27,000 tons) which will be able to carry twin-engine bombers such as the North American PBM-1, Navy equivalent of the heavily armed, hard-hitting Mitchell.

**Ben-Air Power Doctrine**—Naval air leaders have practically always insisted that the fleet air arm is an integral part of the fleet itself. It constitutes the Navy's advance striking force. It is an essential element of sea power in that it can attack a hostile fleet and also defend its own surface vessels, including carriers, from hostile planes.



"Spitfire" XIV Disclosed In Action: Two views of the new Spitfire powered by Rolls-Royce Griffon 65 engine developing over 2,000 hp, and utilizing a five-bladed propeller for the first time on modern aircraft. Plane is heavily armed, fast and has high altitude performance at a ceiling of over 40,000 feet.

Naval aircraft function as a strategic air force, searching out and bombing objectives far ahead of the fleet. They are also a tactical air force, materially aiding land-based bombers in knocking out enemy air power in advance of amphibious landings, and then augmenting shelling by the fleet in supplying bombing and straining support of the troops as they hit the beaches. Naval aviation is thus fitted to play a vital role in the combined air-sea-ground team of the American Armed Forces in the winning of the present war and in preserving the peace in the years to come.

NAVIGATOR

## AAF Staff Changes

Changes in Gen. Henry H. Arnold's top staff announced by the War Department assign Maj. Gen. James Pratt Hodges as Assistant Chief of Air Staff, Intelligence, replacing Brig. Gen. Thomas D.

White, and Brig. Gen. Frederic H. Smith, Jr., as Deputy Chief of Air Staff replacing Brig. Gen. Donald Wilson. Both White and Wilson have undisturbed overseas assignments.

## 5-Bladed Prop Used On Spitfire XIV

New Rolls-Royce engine added, combination giving craft exceptional climbing ability and ceiling over 40,000 feet.

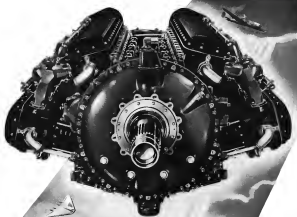
Disclosure that a new Spitfire, using a five-bladed propeller, is now in action over Europe has been made by the British Information Service which says details of the design were turned over to the United States under reverse license.

The five-bladed propeller, used for the first time in a modern aircraft, and an entirely new Rolls-Royce engine feature the craft, giving it exceptional climbing qualities and high altitude performance at a ceiling of more than 40,000 feet. In design, apart from the five-bladed propeller and long nose, the new plane, Spitfire XIV, goes back to the original Spitfire design with fully elliptical wings, but slightly larger rudder. It was designed mainly for high altitude interception, the British reporting the only trouble has been to find sufficient enemy to intercept.

**Fighter-Bomber**—Spitfire XIV is a single-seat, low-wing monoplane fighter and fighter-bomber with a single 8 in. machine gun. It was designed by Vickers Armstrong Supermarine plant. Engine is a Rolls-Royce Griffon 65, developing over 2,000 hp. This engine is 12 cylinder, V type, pressure-cooled, with a two-speed supercharger.

Alternative armaments consist of four 20 mm. cannon or two 20 mm. cannon and two 5 in. machine guns, or two 20 mm. cannon and four .50 in. machine guns. Used as a fighter-bomber the plane can carry a 250- or 500-pound bomb and alternatively it can carry a drop tank instead of a bomb. Another feature is a retractable tail-wheel.

Performance is restricted, but the XIV is reported to be faster than any other Spitfire. Dimensions revealed include: Span 38 feet, 10 inches; length 32 feet, 3 1/2 inches; height 11 feet, 1 1/2 inches; wing area 262 square feet and weight about 6,000 pounds.



## A LIQUID-COOLED GIANT — THE WORLD'S MOST POWERFUL

Going into America's new planes is the most powerful liquid-cooled aircraft engine in the world. ★ It is an Allison engine — of approximately 3,000 horsepower. ★ It is more powerful by hundreds of horsepower — gives our pilots over a third more power to work with than the hottest engine they had before. ★ Vastly all its parts are the same as in other Allison. So plane crews around the world can service it right now. ★ Its high power, long range, smoothness and dependability are qualities vital in the days of war, and equally important in the planes in which you will fly when peace returns.

POWERED BY ALLISON

F-10—Ex-100  
F-11—Ex-100  
F-12—Ex-100  
F-13—Ex-100  
F-14—Ex-100  
F-15—Ex-100  
F-16—Ex-100

The modern power Allison engine built for the U. S. Army and Navy power the above planes.

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF

Indianapolis, Indiana



Every Sunday Afternoon  
GENERAL MOTORS SYNDICATE OF THE AIA — NBC Network

KEEP AMERICA STRONG  
BUY MORE WAR BONDS

# GOODYEAR AIRCRAFT PRODUCTION REPORT

## CONTRACTS: 76928-LL91367 GRUMMAN TBF-1 (Avenger) 3,000 Sets, Empennages

DESIGN CONTRACT RECEIVED: SEPTEMBER 1940

FIRST PRODUCTION UNIT DELIVERED: OCTOBER 1941

100TH PRODUCTION UNIT DELIVERED: MAY 1943

CONTRACTS COMPLETED: NOVEMBER 1943

Remarks: Production history of these contracts includes detailed structural design prior to tooling and manufacture of entire empennage. Battle history of these carrier-based Navy fighters embraces epic achievements at Midway and Coral Sea; fighting testimony of sound construction and of Goodyear Aircraft Corporation's ability to deliver mass production of important components on rapid schedule.

Goodyear is building components for almost different Army/Navy types of aircraft, including complete bomber fighters and airliners.

### HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE

1. By constructing components to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for mass production.
4. By building complete airplanes and airships.

### AVIATION INDUSTRY

5. By extending facilities of Goodyear research laboratories to aid the solution of any design or engineering problem.



Alton, Ohio

Blackfield Park, Arizona

WAR BONDS BUY THE WINGS OF VICTORY

## PERSONNEL

**Walter Bowers** has been appointed vice-president and treasurer of the Lawrence Aeronautical Corp., Lincoln, N. J. Before joining Lawrence, Bowers was in aeronautical and investment banking with Harris Trust and Savings Bank and several other banks. For the past 15 years he has been in Washington where he has held various government positions. His most recent assignment was compliance operations chief with the War Food Administration.



Walter Bowers

**John W. Moore** has been named traffic manager for air transport of the New York Port Authority. He was formerly transportation assistant in the corporate division of Curtiss-Wright Corp. in Buffalo.

**A. Jackson Kelly** (photo), formerly Pan American Airways division traffic manager in London, has assumed his new duties as assistant to the division manager at L. J. Guardia Field, N. Y. He succeeds **Yehudi A. Kase**, who has been transferred to United Kingdom offices of the airline. Kelly joined Pan American in 1927 as a member of the traffic sales office in New York.



**Capt. Jason Young Craig** (photo) has been promoted to chief pilot of American Export Airlines, succeeding **Capt. Charles F. Blair**, who has returned to the airline's trans-Atlantic flight operations as a flight captain. The new chief pilot flew for United Airlines for five years, joining American Export in 1943. Following his graduation from the Naval Flight Training School at Pensacola in 1941, he served with an aircraft squadron of the Navy.



**Dr. M. V. Burton**, professor of Aeronautical Engineering at the University of Texas, is on leave of absence until November, to participate in a cooperative program with the Douglas Aircraft Co. in productive assignments in the engineering department, particularly in structures and vibration and flutter. This cooperative program was developed by **C. T. Reed**, manpower consultant to the

vice-president in charge of engineering at Douglas, and **Dr. M. A. Thompson**, chairman of the department of Aeronautical Engineering at the University of Texas.

**Miss Margarette Kellerman** has been named chief basket of Continental Air Lines, replacing **Michael Rick** who is on an extended leave of absence. Miss Kellerman joined Continental in 1945 and has been a basket since then.

**Ray T. Harley** has been elected vice president of Bendix Aviation Corp., to handle special problems in the re-conversion period. Harley is a former staff executive on production matters and will deal particularly with the corporation's requirements for plants and facilities, factory layout and loading of the corporation's products. Harley was last by Bendix



Ray T. Harley

as the War Department for a year and a half as production ad-

viser to Maj. Gen. Levin R. Campbell, Jr., chief of ordnance. Harley joined Bendix in 1935 through the corporation's acquisition of the Harley-Townsend Corp., of New York, manufacturers of aviation equipment.

**Howard C. Bauer** has been named general manager of Tazewell Boller Bearing Co.'s newly created foreign division, which will handle the sales and servicing of the company's products outside the United States. The new division's offices will be in Canton, Ohio. Bauer has been chief of the anti-friction bearing section of the Truck Division of the War Production Board.

**William M. Steves**, formerly National Airlines' Jacksonville city traffic manager, has been promoted to New York district traffic manager with headquarters in the Airlines Terminal Building. Steves was National Airlines' Tampa city traffic manager prior to being transferred to Jacksonville.



**Robert E. Roach** has been appointed director of contract termination for United Aircraft Corp. to handle termination problems in connection with the corporation's war contracts for engines, propellers and aircraft. Roach joined United Aircraft in 1945 and was named administrator of contracts early in 1945. He is an attorney and formerly was with Chapman and Goodwin, associate counsel of United Aircraft.



**George F. Tolansky**, former assistant to the vice-president in charge of manufacturing of Consolidated Vultee Aircraft Corp., Miami division, and **Ray B. Paulkard**, former director of industrial engineering, have been named assistants to the president.

**Leslie J. Woods**, who joined Philco in 1935, has been named manager of the Industrial Radio division of Philco Corp., with headquarters in Detroit, where Philco will continue to maintain special facilities to serve the automobile and aircraft industries.

**Geodes A. O'Reilly** has been appointed superintendent of communications for Transcontinental & Western Air, Inc., succeeding Har-



## Bird in Hand

Photo Courtesy: Bendix Aircraft Co.

The Boeing B-29 Superfortress is a relentless and powerful bird of prey to the Japs. Flying higher, faster, further, and carrying a greater destructive load than any other bomber, it has ended their island isolation with pulverizing emphasis. Yet, this winged giant is gentle to the pilot's hand. Here's why.

Through remarkable engineering achievement, no power or heat is required to move the B-29's extensive control surfaces. They are directly actuated by the pilot. This is made possible by new developments in dynamic and static balance of control surfaces plus the friction-freeless action by **Fafnir Ball Bearings** in pulleys and other turning points throughout the plant. The result is better "pilot feel", less wearability, less weight and less cost than with the "boost" system.

It is well worth noting that, as new new improvement in aircraft engineering arises, **Fafnir Ball Bearings** continue their maintenance of strength, rigidity and sensitivity in all vast turning points. **Fafnir** engineers will likewise continue to cooperate with the industry in engineering friction out of aircraft designs and engineering full freedom of power into the planes of war and peace. The **Fafnir Bearing Company**, New Britain, Connecticut.



A hand of **Fafnir** equipped pulleys in the Boeing B-29 Superfortress

*Buy War Bonds and Stamps*

# FAFNIR BALL BEARINGS



and K. Higgins, recently passed director of engineering for TWA. O'Reilly has been with TWA for almost 15 years starting as a radio operator. He was among those who developed TWA's present ground station radio transmitter, and is a director of Aeronautical Radio, Inc.

**D. H. Medendorp** has been named general manager of Fairchild Aircraft, Ltd., Toronto, government-owned company administering production of twin-engine Avian trainers planes. A. E. Rasmussen has been named treasurer.

**Charles L. Eggenrud**, assistant editor of the *Aviation News* (last) Tribune has been appointed by Gov. Henry F. Schröder a member of the Indiana Aviation Commission. Eggenrud is president of the St. Joseph County Aviation Commission.

**Reynold B. Leache** has been named director of engineering and research for the Fairchild Camera and Instrument Corp. of New York. Manufacturers of aviation instruments, aerial cameras, radio compasses and other instruments. Leache has been with the company for 15 years. He sold planes in Milwaukee and Chicago and in connection with his Fairchild work organized the aerial photography program for the Colombian government. He recently has been in charge of Fairchild sales to the War Department.

**Mervin C. Miles**, aviation editor of the Los Angeles Times, has been commissioned lieutenant (jg) in the Naval Reserve and is undergoing indoctrination training at the University of Arizona, Tucson, Ariz.

**William C. Siddle** is the station cargo manager at American Rapid Airlines at LaGuardia Field, New York. He has been with the airline about a year and a half and will have responsibility for the quick handling

of cargo. For ten years he was with F. F. Cabot and Co., foreign freight forwarders specializing in international shipments by air.

**Siss Johnson** (photo) has been named director of publicity and public relations for Continental



air. Loran Johnson, born in Iowa, has been with the sales promotion division of Gulf States Oil Co. and has done newspaper reporting for many years. Johnson replaced Kenneth R. Allen who has resigned. He has written articles for many national magazines.



**TELLING THE WORLD**  
 • Taylorcraft Aviation Corp., Appleton, Wis., and Cessna Aircraft Co., Cleveland, are advertising representative. A comprehensive advertising campaign has been prepared for the balance of 1944 and advertisements will appear monthly beginning with the September issue of several leading aviation magazines. This will be the first magazine advertising by Taylorcraft since 1941.



#### HEADS HELL PLANT:

Carl A. Cover, former executive vice-president of Douglas Aircraft Co., whose new appointment as manager of Bell Aircraft's Georgia Division was announced in *Aviation News* Sept. 12. Cover, who has been on active duty for the past year as a colonel with the AAF, has assumed his position as manager of the plant producing Superfortresses. He succeeds Ormer L. Woodson who recently resigned. Cover has had 26 years' experience in the aircraft industry.

• Frank C. Williams, former design executive of Bristol Research Division, Consolidated Vultee Aircraft Corp., and George H. Trenchard, former engineer of Pan American Airways, have formed Williams and Trenchard, industrial designers, in Brook Tower, Detroit.

• U. S. Department of Labor has issued a new pamphlet *Safety Through Management Leadership*. Copies may be obtained from the Division of Labor Standards of the Department in Washington.

• Eastern Air Lines is making its move than a hundred newspapers a month to its Express Service. The company has launched "Fly a Traveler Needs a Friend" Express Service will book you on Eastern, or if that is impossible offer speedy transportation.

• Charles H. Hall is appointed publicity manager of the Fairchild Aircraft Corp. Hall was special assistant to the New York Division director of the War Production Board in the Department of public relations before his appointment by Republic Aviation.

He has been engaged in newspaper work as an editor and columnist. • Francis Walton has resigned from Arthur Kuehn, New York advertising agency, where he has been handling national publicity for the Aviation division of General Motors, to become the editor of the *Albany Times Union*. He is a former assistant secretary of the Aeronautical Chamber of Commerce of America and began his newspaper writing as aviation editor of the *New York World Tribune*. Walton was director of public relations for the Pacific division of Pan American Airways and assistant director of public relations for Pan American Airways system. The Alliance will be published weekly by Fairchild & Reedberg beginning in 1945.

• Fairchild Engine and Airplane Corp., Indianapolis, advertising in newspapers has been selected as one of ten outstanding campaigns of its kind by the Bureau of Advertising, American Newspaper Association, for inclusion in *Victory City Advertising*. Why Industry Needs It. How You Can Use It, published recently by the Bureau. Fairchild was cited as an outstanding exponent of the theory that industry must lay a foundation of good will and public understanding in the plant cities where it lives and works in order to be to the people. Joseph E. Lewis is head of public relations and advertising for Fairchild. In addition the Bureau honored six by winning advertisers, Lockheed, Martin, McDonnell, United Aircraft, United Air Lines

## AIRCRAFT PRODUCTION

### Design Changes Bring Revision In 5 Plane Company Schedules

Cancellation of 1947 Lightnings at Lockheed Burbank plant ordered; Douglas Oklahoma City unit told to reduce C-47 output by 1280; P-40's, PT-13's and P-63's affected.

Shifting emphasis of the war in the air and an indication of changes in the aircraft production picture yet to come are pointed up in the latest revision of future aircraft production affecting five companies.

Certain types of aircraft for which there is a diminishing demand are being cut back, some sharply, to provide space, equipment and labor for the manufacture of planes for which there is a growing need.

**Schedule Revisions**—The cutbacks are a continuation of the schedule revisions started some months ago and, while the War Department report to WPA's Production Executive Committee made no mention of future possibilities, it is taken for granted that further downward revisions will follow.

Largest cutback involved the Lockheed plant at Burbank, where future production of 1947 P-38 Lightning fighters was canceled. This cutback was the subject of widespread speculation since the War Department and the action

was to make way for a new type of airplane, details of which are secret. The P-38 is one of the top fighter planes of the world.

• Douglas Cutbacks—Second largest cutback involved the Douglas plant at Oklahoma City, where a reduction of 1280 C-47's was ordered. This cutback, however, will extend through December of 1945 and will be gradual through the rest of this year. Production of this transport has been consistently good and the schedule change indicates reduced demands with plenty on hand.

At the same time the War Department's announcement indicated increased production of the C-36 Graceland, increasing future production of 420 P-40's.

• Republic's Training—Republic's production of their Republic PT-13 trainer is virtually at an end with cancellation of 261 of the craft scheduled for future delivery. This schedule change will permit increased concentration on the output of the B-29 Superfortress.

Bell Aircraft's future schedule

at P-63 Kingcobra planes was cut by 325 units, but the company will continue at or in excess of present production schedules.

• Reviewed by WPA—The War Department's report was careful to note that all cutbacks were reviewed by WPA's Production Executive Committee staff, formed for this purpose and composed of representatives of the Army, Navy, Maritime Commission, WPA, Smaller War Plants Corp., and the War Relocation Commission.

The announcement also noted that workers in the five plants are being given a full story of the cutbacks. There was considerable criticism of the manner in which the cutback announcement of last month was handled, the companies involved having no advance notice and the workers, affected by peace efforts anyway being taken completely by surprise.

### New Sperry Compass

A directional gyro synchronized with the magnetic field of the earth has been developed by Sperry Gyroscopic Co. In this new light instrument, the Gyro compass, Sperry engineers have combined the features of directional gyro and a magnetic compass and the result is said to make not only for greater accuracy in navigation, but also in lightness and simplify the duties of the pilot.

Sperry engineers explained that this is in part because the Gyro compass allows for deadbeat indication and accurate magnetic bearings without need for turning error or the necessity of resetting.



Members of the Advisory Committee on Production of the Aircraft War Production Council, East Coast, are shown after a recent meeting at Chase Vought Aircraft, Stratford, Conn. Front row, l. to r.: G. R. Auld, Eastern Aircraft Division of General Motors; F. F. Elmer, Ranger Aircraft; Martin; Curtiss-Wright; I. J. Keough, Republic; H. E. Lester, Republic; B. D.

Touffier and Rex R. Bates, both of Chase Vought; Back row, l. to r.: V. A. Johnson, Fairchild; C. W. Shupley, Glenn L. Martin Co.; C. C. Hood, Eastern; C. J. Fagan, Eastern; R. A. Marner, AWC; East Coast, Inc.; William Dwyer, Bell Aircraft; H. S. Tillotson, Bell; Robert Young, Glenn L. Martin Corp.; and R. R. Bestlage, Chase Vought.



of all cargo and mail out of and into the United States. Arthur F. Cole has been named assistant cargo man-

## 'Copter Development Speeds Ahead; At Least 12 Models at Flight Stage

Naab-Kelvinator begins production line assembly of Sikorsky R-6's; Army testing Plant-LePage twin-rotor aircraft.

With the start of the second assembly line production of helicopters, a survey reveals that at least twelve models have flown or are at the flight stage. Naab-Kelvinator has begun production line assembly of R-6 helicopters designed, engineered and built by Sikorsky Division of United Aircraft Corp.

The Sikorsky Division has been producing R-6 helicopters on the first helicopter assembly line at Bridgeport, Conn., and is getting under way on production of the R-6, a version far ahead of the R-6. The R-6 mounts an air-cooled Franklin 345 hp engine, the R-6 a 420 hp, Pratt & Whitney.

Other developments and their status are:

► **Army** is testing a Plant-LePage twin-rotor model powered by a 450 hp, Pratt & Whitney engine similar to that used in the Sikorsky R-6. Others are reported being built and Plant-LePage has projected a 12- to 14-passenger model with top speed of 140 mph.

► The Bell helicopter has been test flown for several months and subsequent improved models are under way.

► The Hiller-copter, already test flown will be built in larger models under a contract signed by young Hiller with Kaiser Cargo, Inc.

► P-V Engineering Forum is understood to have built several models in addition to one test flown in Washington last fall. Navy is reported to be interested in this version.

► Aeronautical Products, Inc., has been flying a model used in commercial demonstration for Filer's of Boston. It is still in the test category, but is reported to have a satisfactory performance.

► Kellett, with a long experience in building autogiros, is experimenting with a helicopter with reported high performance.

► G & A, Alhambra, at Willow Grove, Pa., a subsidiary of Firestone, has produced a two-place autogiro and is now building a helicopter model.

## Reconversion Plan

A seven-point program designed to aid the aircraft industry in the task of demobilizing its production and more than 2,000,000 workers to concentrated peacetime levels has been proposed by Harry Woodhead, president of Consolidated Vultee and a member of the Board of Governors of the Aeronautical Chamber of Commerce.

- Woodhead's proposed represents generally the thinking of the industry on the problems and includes:
  - Adequate unemployment insurance.
  - Transportation of workers to new jobs or home fide homes.
  - Prompt contract termination.
  - Advance notice of cutbacks.
  - Rational reassignment of civilian aircraft manufacture.
  - Intelligent surplus aircraft disposal.
  - Continuation of college air training programs.

► **Arthur C. Schow,** Detroit engineer, has built a ship with counter-rotating rotors and a pusher propeller. It is reported ready for flight testing.

► **On the West Coast,** the Landlord helicopter, also a twin-rotor job, but with a novel arrangement of meshing rotors, is at the flight test stage.

► **Lockhead** is experimenting with water combatants and has one reported to give one-third more lift than conventional types. The company has been testing rotor assemblies, but has not yet completed engineering of the ship itself. It is among twelve a four- or five-passenger helicopter to be sold for the price of a medium automobile.

► **Consolidated Vultee Corp.** is developing a helicopter in the Bell helicopter. It has been dubbed a "helco" and probably is being flight tested.

► **Wingman** has been working on a model at New Orleans, but results thus far are understood to be disappointing. Work is continuing, however.

► **Bendix Helicopter, Inc.,** has published designs, but has not yet turned out a prototype.

► **Harving Aircraft Co.,** of San Antonio, Tex., has been reported manufacturing a test model of a helicopter to be flight tested toward the end of the year.

► **Twin Coach Co.** is understood to be making a model that has not yet been flown.



Bay of the South - to Japan and to India

## Another Boeing Superfortress starts for Japan

They're beginning to roll off the assembly lines in ever-increasing numbers: these Boeing B-29 Superfortresses, only a few of which have yet seen action.

They have behind them one of the most gigantic production programs ever conceived for any weapon of war. It is considered a major achievement that the Superfortress is a quantity production airplane as well as a high-performance airplane.

As creator of the Superfortresses, Boeing is charged with the responsibility of providing all engineering data to hundreds of co-operating companies making all design changes and passing them along... supplying master gauges

that control the interchangeability of parts... making available to the other companies making and producing sub-assemblies, including new Boeing developed manufacturing techniques, and coordinating all the combined activities.

The group of manufacturers participating in this huge production program includes the Martin and Bell aircraft companies, also producing completed Boeing B-29's, and other companies producing major sub-assemblies—Borg, Cessna, Chrysler, General Motors, Goodyear, Hudson, Murray and A. C. Smith.

While fulfilling the responsibility of servicing that network of co-operating

companies, Boeing also carries the major loads in producing completed B-29's. Where all facilities reach capacity, Boeing will produce approximately 75 per cent of all B-29's.

The Superfortress and the famous Flying Fortress represent Boeing's effort to provide the Army's great bombing crews with the best possible airplanes to accomplish their hazardous and important missions.

When the war ends, Boeing principles of design, engineering and manufacture will be turned to peacetime products... and you may know of one product that, if it's "Bolt by Boeing," it's bound to be good.

**BOEING**



## CONSTELLATION ASSEMBLY LINE

Lockheed C-69 Constellation transport planes shown at the final assembly line in a hangar at the Lockheed Air Terminal

DESIGNER OF THE FLYING FORTRESS • THE NEW B-29 SUPERFORTRESS • THE STRATOLINER • THIRTEEN-ENGINE PLANE



► **Thien Aircraft Co.** has been experimenting with rotor models.

► **Adel Precision Products Corp.** has moved to the design stage.

► **Maurice Trailer Coach Co.**, a West Coast organization, has produced a model for test purposes.

► **Tiedje Machine Shop**, also a West Coast company, is reported building a model.

► Two other West Coast organizations projecting helicopter models are **Rotoplane Corp.** and **Rotecore Corp.**

## Martin Develops New Landing Gear

Lightweight retractable unit used on *Rainbow* believed adaptable to post-war commercial transport.

A lightweight retractable landing gear with possibilities for adaptation to post-war commercial transport has been patented by John Burns Stephens and assigned to The Glenn L. Martin Co.

The new gear, which incorporates many novel features for bracing and locking in the down position, is reported to have proved itself in service on the A-36 *Balanced*, used by the British, withstanding months of desert operation from irregular fields with a minimum of maintenance.

► **Weight**—In the Martin A-36 installation, weight of the main gear



**New Landing Gear:** Close-up of new lightweight retractable landing gear which its inventor claims may well mean greater payloads for post-war commercial transport. The patent is assigned to The Glenn L. Martin Co.

was 597.124 pounds as against 19,000 pounds gross weight for the airplane while allowing a load factor of 6 g's—a landing gear to gross weight percentage of only 4.72.

The new Martin gear is supported by an N-strut attached to the forward wing area where it rises through the engine nacelle and the strut can be made as a single forging, eliminating many small assemblies found in other types of landing gear. The also

is attached to one end of a trussion shaft, running on bearings in the N-strut and braced with a single cross brace from the other end of the trussion shaft. Direct connections from the axle operate the wheel-well doors, eliminating the need for additional hydraulic mechanisms and assuring positive action of the doors.

Raising and lowering of the gear is actuated by a hydraulic cylinder which moves an arm or crank attached to the oleo which rotates it about the trussion shaft as a pivot, up and back in flight and down and forward for landing and takeoff.

## SAE to Meet in L. A.

More than 30 papers dealing with engineering aspects of aviation will be presented at the National Aeronautics meeting and Aeronautics Engineering display of the Society of Automotive Engineers. Sessions will be held from Oct. 5 to 7 at the Biltmore Hotel in Los Angeles.

The application of war experience to post-war aviation will be the chief theme of the session. General chairman will be J. L. Atwood, executive vice-president of North American Aviation, Inc. Feature of the session will be presentation of the Manly Memorial Award for the best aircraft paper presented at an SAE meeting during the year.

## FINANCIAL

### Merrill-Lynch Analysis Favors Airline Stocks for Long Pull

Report lists prospects for growth, reservoir of trained personnel, technical advances and U. S. support because of national defense aspect as factors for advance.

That airline securities present "an attractive long-range picture" is the conclusion reached by "Airline—1944"—fourth annual review of the industry currently being released by Merrill, Lynch, Foss and Bence, many-branched New York Stock Exchange firm.

Among the favorable factors listed are the industry's growth prospects, reservoir of trained personnel, war-improved equipment and methods, technological advances, government support because of the national defense aspect, lessening dependence on mail pay, regulated expansion, moderate capitalizations and ease of conversion to peace-time operation.

► **Boatish**—On the unfavorable side, the exchange firm enumerates dilution of existing capitalizations due to further financing, limited dividends, trends toward parallel services in domestic field, potential inroads of railroads and other new companies, keen competition in foreign field, potential lack of high war-time land factors, prospective rate reductions and danger of duplicate taxation.

The survey reviews high spots of the industry and briefly analyzes individual carriers. It raises a number of points, however, which may be construed to be in conflict. For instance, much is made of the lessening dependence on airmail subsidies. Yet, on the other hand, the contention is advanced that continued active support by the government after the war may be anticipated. This brings into sharp focus the role to be assumed by the Federal government in the airline industry. In the past, this assistance was in the form of mail compensation in accordance with the need of the carriers.

► **Mail Rate Adjustments**—In fact, without the ambitious expansion program heralded for the in-

dustry, some circles seriously question if it may not become necessary under post-war operating conditions to afford the lines with immediate relief through increased mail rates. In other words, it is believed that without war-stimulated traffic, many of the carriers may soon return to the "need" category.

Some authorities may contend that the survey's comparative view of Pullman traffic could have been adjusted to a more realistic basis. For example, the report states that "if close to 300 planes carried but 42 percent of Pullman traffic in 1943, the airlines will require several times that number to carry 100 percent." (This percentage of Pullman traffic is attributed to the airlines within ten years after the war by Assistant Secretary of Commerce (Warren).)

► **1943 Absorption Year**—Now 1943 was a very abnormal year in which railroad travel was greatly stimulated and facilities were available to permit extreme leverage in operations. On the other hand, airline traffic was already touching peak levels and simply could not handle all demands.

The year 1944—was the last pre-war period—would have been far more desirable as a "normal" basis for comparison. During that year, the airlines handled about 12.9 percent of Pullman travel with an average fleet of about 350 planes. The inference can now be drawn that perhaps it may not take as many planes as formerly believed to capture the bulk of the Pullman market. Moreover, planes will have larger seating capacities than in previous years. Further, rapid turn-around and high utilization of equipment can minimize the necessity for a large fleet of planes.

► **Holdings**—An interesting side-light is afforded by the actual investment in airline securities by Merrill-Lynch for its own account

and that of its partners. As of April 1, 1944, a "small" interest was reported as held in Eastern, Pan American, United and Western Air Lines.

A "small" interest in a company is defined as having a market value of less than \$50,000. This is an interesting contrast to previous years when the firm reported "substantial" and "large" investments in airline securities. Evidently, despite the long-range optimistic prognostication for the industry, the firm itself appears to have doubts as to the advisability of owning airline securities—at least for near-term profits.

## Liberty Stock Vote

A special meeting of stockholders of Liberty Aircraft Products Corp. has been called for Sept. 25 to approve a two-for-one split of common shares and to authorize issuance of 100,000 shares of new \$15 convertible \$10-par preferred of which 60,000 are to be offered for sale as soon as a registration statement becomes effective.

The firm's common stock will be increased from 200,000 to 400,000 shares and the par value reduced from \$1 to 50 cents a share.



## ISSUES REPORT:

Goodyear Tire & Rubber Co. reports net sales of \$464,707,818 for the 12 months of 1944, an increase of 10.5 per cent over the 1943 period. F. W. Luchfield, board chairman, says profits earned to earned surplus amount to \$7,491,878 and that, while renegotiation of war contracts for the year ending December 31, 1944, has not been completed, provision for settlement for 1943 and the first half of this year has been made.



**FIRST PHOTO SHOWING FIREPOWER OF B-29 SUPERFORTRESS:**

Shown here for the first time are the four multiple-barrel, remote-controlled turrets of the Boeing B-29 which gives this bomber the most highly developed armament system of any airplane. The system is completely electrical and makes possible an ammunition and heavy concentration of fire power on any target approaching from any direction. These turrets are: (1.) top forward turret; (2.) lower forward turret; (3.) upper rear turret; (4.) lower rear turret and (5.) tail turret which, in addition to two 50 caliber machine guns which the officers carry, has in addition a 30 mm. cannon.



under- and over-charges, and be a step toward tariff simplification.

**Missiles Revenue Provision**—Analysis of revenue distribution on maritime shipments of air express by the present contract stipulation shows different routes and varying mileages between certain points result in different opportunities on shipments between the same points. Revenue distribution sheets for August, a year ago, showed instances where some carriers received as little as 2 or 3 cents for transporting a shipment. For these and other reasons recommendation was made, that consideration be given a significant revenue provision for participating carrier, rather than considering it to the originating carrier. The suggestion is that such maximum revenue might be provided by an amount per shipment rather than a percentage of the revenue.

In proposing that arrangements be attempted with B. E. A. to assess other than their local rates on air-rail express shipments, the point is made that on some shipments this means a combination of three local rates is involved, and it is conceivable that combined rail express charges might in some in-

## Types of Service

"It is almost inevitable," says the report on air freight and freight rates and tariffs by Air Cargo, Inc., "that the air carrier will have two types of service, one air express service by which packages will be transported on combinations, passenger-mail-cargo planes, and the other a cargo or freight service by which commodities will be transported on all-cargo planes."

stances exceed the charge to the shipper.

**Block Method**—Use of a graduation of 50 miles extended to all distances, in the block system of tariff publication recommended, instead of the present 100-mile scale, would be "more fair to all concerned." The block method divides the nation along lines of longitude and latitude, and this method of rate publication would reduce from 50 to 10 pages the printed matter necessary to give applicable rate scale numbers. Nor would the volume increase when

additional points are to be served, as it would with the "post-impont" publication method. Single publication for both air express and air freight service might cut expense, but would emphasize the tariff, so the report suggests separate tariff publication for the two services.

Airlines must adapt the bureau method of rate making "if uniformity and stability of rates are to obtain," if shippers are to be kept informed of rate proposals threatening competitive disadvantage, if small shippers are to be protected against the "pernicious power" of the great traffic volume of larger shippers, and if indiscriminate rate cutting is to be avoided.

**May Form Bureau**—Under the Civil Aeronautics Act, the airlines apparently can form such bureaus; moreover, such action seems advisable under section 404 (b) making it unlawful for air carriers to publish charges which would cause undue preference or discrimination. And such a bureau would be a facility for reconciliation of shippers' and airlines' rate problems as well as those which may develop between airlines and surface car-

riers. The airlines should avoid mistakes made by the rail carriers and motor carriers, the report says, by establishing a rate bureau and publishing an industry tariff.

The airlines have at times discussed adoption of a shipper's discount plan, but the report is against it, holding that it would be a "promotional" or "sales" device rather than a practical rate or tariff provision. Rates for property transportation are not related to passenger fares, and it does not appear that a discount plan along lines of the Air Travel Card Plan could be effected without being subject to attacks from the shipping public. Besides, a number of traffic managers of large shippers feel that a shipper's discount plan would be discriminatory and unlawful, while others felt it should not be adopted even if legislation were passed to permit it. The report recommends, therefore, that no such plan be adopted.

## Problems Confront CAB in Pacific Case

What is consistent and fair for hearings yet to be delayed postponement of proceedings unlikely.

Civil Aeronautics Board's combined prehearing conference for North and Central Pacific applicants raised two familiar problems—what should be consolidated for hearing, and when should hearings begin?

Nearly half the applicants asked to have the hearing date, now Jan. 16, delayed at least 60 days. Similar pleas from applicants in both Atlantic cases failed to move the Board, and there seems little reason to assume it can be prevailed on to postpone the Pacific proceedings.

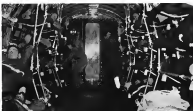
## Stress Simplicity

"Air carriers," according to Air Cargo's latest report, "should strive to establish and maintain a rate structure in tariff as simple as is compatible with a clear and proper statement of the applicable charges and certainly should profit by and avoid the errors made by the surface carriers. In that way, less technical help will be required in the traffic departments of the carriers as well as of the shippers."



## UAL AT GUADALCANAL AND AUSTRALIA

These pictures of United Air Lines' operations for the Air Transport Command in the Pacific show a plane at takeoff on a runway at Guadalcanal, near a routine stop on United's ATC run, and an interior shot of Tanagerville, Australia, where the assembled personnel are starting for home on a C-54 flown by UAL. United makes two round trips a day between San Francisco, Honolulu and the South Pacific. The fact that it can talk about an ATC route to this extent illustrates how the bus on such disclosures has been lifted in the past year.



**Consolidation**—The consolidation problem is more complex. It concerns the equity of handling applicants for great circle routes between the U. S. and the Orient via Alaska in the same proceeding with applicants for U. S.-Alaska routes. This is, of course, only an international extension of the problem of local and through service applicants for domestic routes.

Public Counsel has recommended applications for U. S.-Australia, Central Pacific, North Pacific and U. S.-Alaska routes be heard jointly. Attorneys representing several Alaskan carriers and growing great circle applicants before U. S.-Alaska applicants could be heard might prejudice the latter's cases.

**Deadline Oct. 3**—Executive Ross I. Newman, who is conducting the case, has not indicated what his recommendations will be regarding consolidation, but says he will proceed on the assumption the hearing date will remain as originally set. Oct. 3 is the deadline for sending applications now on

file or for filing new applications to be considered in the proceeding. Dec. 30 is the date for exchange of exhibits.

Attending the prehearing conference were representatives of Alaska Airlines, American President Lines, Ltd., Chicago and Southern Air Lines, Hawaiian Air Lines, Ltd., Northwest Airlines, Pan American Airways, PCA, TWA, United Air Lines, Western Air Lines, West Alaska Airlines, Woodley Airways, Ryan School of Aeronautics, and the Department of Justice.

Counsel for Ryan School of Aeronautics indicated its application would be withdrawn.

## Wright Confirmed

Nomination of Theodore P. Wright to be Civil Aeronautics Administrator was confirmed by the Senate on Sept. 20. Wright, formerly director of Aeronautics Research Control Office, will take over his new duties Oct. 1.



## TRANS-ATLANTIC CARGO SETS PAA RECORD:

August operations at La Guardia Field brought trans-Atlantic cargo carried by Pan American Airways' flying boats were 300 per cent above the first of the year. The new high consisted of 253,712 pounds of mail and express, an increase of 253,712 pounds over July. Largest single classification was mail. Beau-

tiful seaboard news were high priority air-express shipments of our products. Photo shows 30,500 pounds of air cargo arriving at Pan American's new terminal for air shipment to overseas military bases. A Constellation, a former Navy patrol bomber now in cargo service, is in the left background.

## Interest Revived in *Aircruiser* As Single-Engine Feeder Plane

Possible relaxation of rule requiring multi-motored craft, plus growing importance of ton-mile cost as limiting factor in range of goods that can be flown, turns attention to Bellanca's one-motored transport.

By BEAINE STUBBLEFIELD

Possibility that Civil Aeronautics Board might authorize use of single-engine airplanes as feeder lines, and on the main lines for cargo, plus the growing importance of ton-mile costs as a limiting factor in the range of goods that can be flown, have brought recent inquiries to Bellanca Aircraft concerning its single-engine *Aircruiser*.

Only one-motored large transport in the United States, this plane grosses 11,465 pounds, carries 4,000 pounds payload, cruises at 180 mph., and operates at twelve cents per mile, according to official statement, not including administrative costs.

► **Design Began in 1925**—Design of the *Aircruiser* was begun in 1925, and from that time up to 1946, a total of 33 units was delivered to various postwar. Army Air Corps took 14, designated C-27. These participated in the Army's disastrous attempt to fly the mail following cancellation of contracts. The Bellanca planes had no accidents, and very little publicity. One pilot said that he often wanted for arrival of as many as 15 of the smaller planes in service, and took these combined loads into his C-27.

The *Aircruisers* had the foundation of the present Air Transport Command, according to company officials, performing a daily Army cargo service between Middletown Air Depot, Pa., Bolling Field at Washington, and Langley Field, Va.

► **Modification Possible**—G. M. Bellanca told the writer last week, at his plant at New Castle, Del., that he could modify the distinctive-looking monoplane (it spans wing and a half), using better materials now available, give it more power and higher performance, and raise the payload to about 6,000 pounds. He said he would retain the original wing design and the conventional two-wheel carriage, with retracting gear.

One model carried ten passengers in duffle seats, and the ship was licensed to carry sixteen in ordinary steel-tube "bush" seats. Bellanca, widely known as an efficiency designer, and winner of many prizes, says it is his opinion that his single-engine transport, with its stability and 58 mph. landing speed, is fully as safe in forced landings, either on or off airport, as a two-engined plane with one engine inoperative.

► **Payload Increased**—Early versions of the C-27 were powered with the 625 hp. Pratt & Whitney Hornet, giving a payload of 2,880 pounds. Later models carried the 750 hp. Wright Cyclone, raising the payload to 4,500 pounds.

None of the baggage is arranged so that either radial or inline engines can be mounted. Light engines, of course, are set farther forward, and heavier engines, farther back. Mr. Bellanca said in reply to inquiry that if surplus Allison engines were desired by operators, it would be feasible to mount them.

► **Fixed-Ambulance Plane**—One *Aircruiser* went to the Cuban government as a combined coast guard, transport, and ambulance plane. It was equipped with two machine guns firing forward, and one on a ring mount at the rear. Pilots were provided for mounting six steel litters in the cabin.

Another unit, in the service of a copper mine in Ecuador, brought in 15,000 pounds of fuel oil per day, and an each return trip to the coast carried ten 400-pound copper slabs.

It was an *Aircruiser* that supplied the Great Bear Lake polar-bird mine in Canada a year ago.

## Curb Priority Abuse

Government agencies, commercial airlines, and industries are cooperating with the War Department in eliminating abuse of the air travel priority system. The Department points out that persons who initially request for travel at the urgency of the trip to obtain priority are liable to a fine of \$10,000, ten years' imprisonment or both.

Priorities and Traffic Division of the Air Transport Command has approved its procedure for checking requests. These new procedures, plus the penalties which may be imposed for false certification, lessen the possibilities for violation of priorities.

## State Insurance Rule

A subcommittee of the Senate Judiciary Committee favorably recommended House-approved legislation to exempt the insurance business from provisions of the Federal anti-trust laws. An effect of this legislation would be to leave regulation of aviation insurance entirely within the jurisdiction of the States.

ATTENTION:

# Aeronautical Engineers!

WE ARE LOOKING FOR A MAN WHO IS . . .

A qualified Aeronautical Engineer; Competent to originate, instigate, direct, supervise and carry to completion, aeronautical projects for an old established aircraft manufacturer; Capable of organizing an efficient Engineering Department.

IF YOU QUALIFY, WE'D LIKE TO ASK YOU . . .

Are you interested in light, personal planes? Would you like to play a vital role in further developing and operating a "not-too-big" plane manufacturing operation? Does post-war security and ample compensation appeal to you? Have you completed your War job? Are you immediately available?

ARE YOUR ANSWERS ALL "YES"?

Then write us a letter. It will be held in strict confidence. Tell us all about yourself. We're particularly interested in . . .

Your name and present permanent address. Date and place of birth. Details of education — schools, degrees and dates. Details of experience — dates, names and positions. Marital status. Salary asked. Date of availability.

Address all letters to: P-119, Aviation News  
330 West 42nd Street, New York 18, N. Y.



SINGLE ENGINE BELLANCA AIRCRUISER

Designing this high-wing personal transportation, Mr. Bellanca turned him to gear by making standard pull wings do double duty as lift struts. Later versions of this wheel pants model had retracting landing gear.





## Memo to Mr. Hull

THAT U. S. Government has invited more than 50 nations to send delegates here to an international aviation conference in November. Even though much of the action taken will be preliminary and tentative, the transcendent importance of aviation on the future commerce and safety of the world will make the meeting one of major public interest.

The State Department should recognize that interest and exert every effort to see that the press of the world is informed exactly and adequately on the progress of the sessions. It is a frequent complaint in some quarters that this country has no well-defined international aviation policy. Highest government officials deny this charge emphatically. But as far the public has not been given sufficient information on the subject for it to reach its own conclusion. Repetition of the sad experience the press has had in learning about several previous international conferences should not be permitted at the November meetings.

## For Safer Flying

AS A LIGHTPLANE without a tail wheel landed near Washington the other day, sparks from the rubber foot flew on doped fabric and started a fire which destroyed the craft in a few minutes. A fire extinguisher and a fire truck failed to control the blaze.

The accident highlighted the fact that despite the market represented by thousands of fabric-covered lightplanes which have been flying for years, modern industry has failed to concert a fire-resistant dope or covering with a price within reach of every private pilot. Inflammable cellulose nitrate is still widely used. The Navy is using cellulose acetate butyrate, which is fire resistant, but which still leaves much to be desired.

Fortunately, the aircraft development section of CAA's technical development division has undertaken a thorough search for a suitable coating for dope which would resist fire for at least 30 seconds. The Bureau of Standards has assigned capable engineers and a laboratory to the prob-

lem. The prospects are hopeful. The results will be of greatest importance to the private flyer of tomorrow. Meanwhile, why hasn't industry already developed a satisfactory product?

## Harmful Publicity

ROTARY WING AIRCRAFT in the future must live down more injudiciously prepared publicity blarney than probably any other type of aviation craft. The latest example, unfortunately, appears to be traced to Army officers instead of industry press agents.

Two helicopters were flown from Bridgeport, Conn., to Seymour, Ind., recently. There was nothing startling in the flight. Such machines have been flying cross-country without fanfare or fuss for months. There was nothing unusual about the craft. They were production models of a type being replaced by improved versions.

But when the ships arrived at the Freeman Army airfield at Seymour, the story was released in sensational phrases comparable with an announcement of a B-36 raid over Japan. The flight "made aviation history." The pilots "set new cross country helicopter speed records even though they encountered strong headwinds and crossed the Allegheny Mountains in Pennsylvania." It was "the longest formation flight ever made by rotary type planes in this country." They were flown to "the nation's first military helicopter school." The facts are these:

The flight required five days. Twelve stops were made. Flying time was 14.45 hours. Average cruising air speed was 65 mph. Average cruising ground speed was 69.15 mph, hardly a headwind condition. Average altitude was 500 feet. The craft flew a daily average of 3:45 hours. Longest flight was 56 miles, and most hops were less than 50 miles. The first purely military school involving helicopters has been operated by the Coast Guard for months. The school at Seymour is purely experimental, to work out some bugs in the training program.

Aviation can do without distorted announcements like this in the growing-up period from here on.

ROBERT H. WOOD



## MARTIN MARS SLASHES TON-MILE COSTS

AIRCRAFT operating costs, low enough to permit comparison with surface costs in some fields, are now within sight thanks to the 72-ton Martin Mars. World's most efficient airplane, the Mars already shows an operating cost of less than 15 cents per ton-mile, according to Glenn L. Martin, president and founder of the company which bears his name.

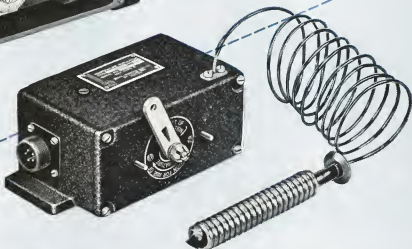
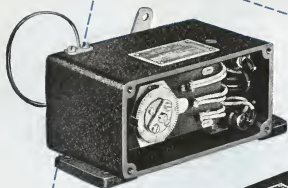
Moreover, Mr. Martin declares, the twenty new 82-ton Mars transports now being built for the U. S. Navy will have an operating cost of 10 cents per ton-mile at 80% cargo capacity; while a ton-mile operating cost of 7 cents is in sight.

For example, in the shipment of deep-frozen foods, Mars transports, dispensing with mechanical refrigeration by climbing to 25,000 feet and sub-zero temperatures, will operate at amazingly low ton-mile costs at speeds upwards of 200 miles per hour. And this is only one of many new fields the Mars has opened to aviation. To reach the world of tomorrow, ship by Martin Mars!

THE GLENN L. MARTIN COMPANY, HARTFORD 3, CONNECTICUT, U. S. A.  
THE GLENN L. MARTIN COMPANY, CHICAGO 17, ILLINOIS

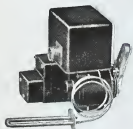
**Martin**  
AIRCRAFT

Boilers of Dependability Through Care 1919



## ***AUTOMATIC MODULATION OF CARBURETOR AIR TEMPERATURE***

**and other applications involving automatic control of aircraft flight operations.**



Compact temperature controlled actuator especially adapted for anti-ice applications. Arm rotation adjustable within range of 30 to 120 degrees. Torque output up to 75 inch-pounds.



Servos available in several types for applications involving additional power requirements.

White-Rodgers modulating temperature controls and Servo actuators can be adapted to most designs requiring the safety of automatic local or remote temperature control. They have been designed especially for the control of:

**Cabin Temperature  
Anti-ice Temperature  
Carburetor Air Temperature  
Carburetor Mixture  
Carburetor Throttle**

On request, engineering data will be sent to authorized manufacturers concerned with the above or similar applications.



**WHITE-RODGERS**  
**ELECTRIC CO.**  **St. Louis**